WAMGROUP®

MAP®

You name it, we mix it.

40 years+ of expertise with over **10,000+ mixers** installed worldwide

MIXING TECHNOLOGY SOLUTIONS

MAP® is one of the world's leading providers of technically advanced mixing process solutions for a wide range of applications. Our staff advise customers on how to achieve the optimum process conditions for each specific application.

INDUSTRIAL QUALITY

Quality does not only refer to our product. Quality also stands for constant optimisation of manufacturing processes, to the point of ensuring that each mixer achieves its maximum efficiency in operation.

LOCAL AFTER-SALES SUPPORT

We assist our customers with optimal on-site technical support. Our worldwide subsidiary network helps in troubleshooting and provides a professional solution for any mixing requirement.

MAP® MIXERS MANUFACTURING PLANTS

1 CHINA

1 INDIA

1 ROMANIA

2 ITALY

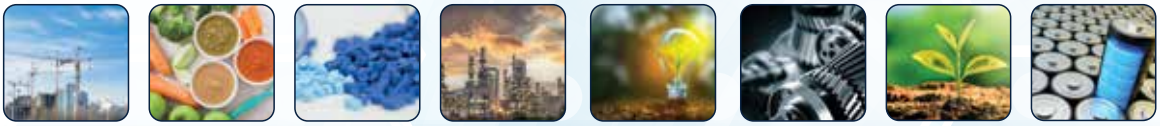
14 TEST LABORATORIES

OUR RECIPE FOR SUCCESS

All MAP® mixers are manufactured in our own plants.
We deliver our products worldwide from **local facilities** in the USA, Latin America, Europe, Asia and the Middle East.
Thanks to WAMGROUP®'s **global test laboratory network** and trading subsidiaries we are able to serve customers around the globe, no matter where they are based.

Mixers by Industry

As the world's leading manufacturer of Mixers,
MAP® boasts vast know-how and expertise in
Mixers specialised for various applications and industries.
Whether you are big or small, work in food, construction, plastics, cosmetics,
pharmaceuticals, or any other sector, we have more than one solution.



	BUILDING & CONSTRUCTION	FEED & FOOD	PLASTICS & CHEMICALS	HEAVY INDUSTRIES	RENEWABLE ENERGY	PLANTS & MACHINERY	ENVIRONMENTAL	SECONDARY BATTERY
BATCH MIXERS								
• WBH	✓	✓	✓	✓	✓	✓	✓	
• WBH Lithium								✓
• WBHT	✓	✓	✓	✓	✓	✓		
• WBHP		✓	✓					
• WBN		✓	✓		✓	✓		✓
• WBR		✓	✓		✓	✓		
• MLH	✓	✓	✓	✓	✓	✓	✓	✓
CONTINUOUS MIXERS								
• WAH / WAHF	✓	✓	✓	✓	✓	✓	✓	
• DUSTFIX™	✓		✓	✓	✓	✓	✓	
• MESC-UM	✓		✓	✓	✓	✓	✓	
• WETDUST™			✓	✓	✓	✓	✓	
• CLAYGRAN™	✓							
• WETMIX™	✓							

In-house Manufacturing

Since 1983, we have been designing, developing and manufacturing a unique range of Mixers in-house which meets all user requirements providing a professional solution for virtually every need in the market.

All our products are developed, tested, and manufactured by our own people. Our aim is to guarantee premium quality and short delivery times. A comprehensive range of specialised products meets your needs for laboratory research or industrial production purposes.

- Certified manufacturing processes;
- Standardised components and production methods;
- Vast experience in selecting materials and components;
- State-of-the-art production.

State-of-the-Art Labs for Advanced Mixing

Our state-of-the-art test laboratories include equipment and accessories that allow us to perform mixing tests with a variety of bulk materials. The test set-ups enable optimal simulation of industrial processes. The test sequences follow the logic of real applications under genuine operating conditions.

Our competent staff will be delighted to assist you in carrying out custom-designed tests according to your individual requirements. The test results are recorded on 4K video, while test samples are stored in our lab archives for internal reference purposes.

What We Mix Is
What We Aim to Achieve

MAP® masters mixing solids with solids and solids with liquids in small quantities, i.e., less than 25%.
For this reason our mixers are referred to as Dry Mixers.

Our Strengths:

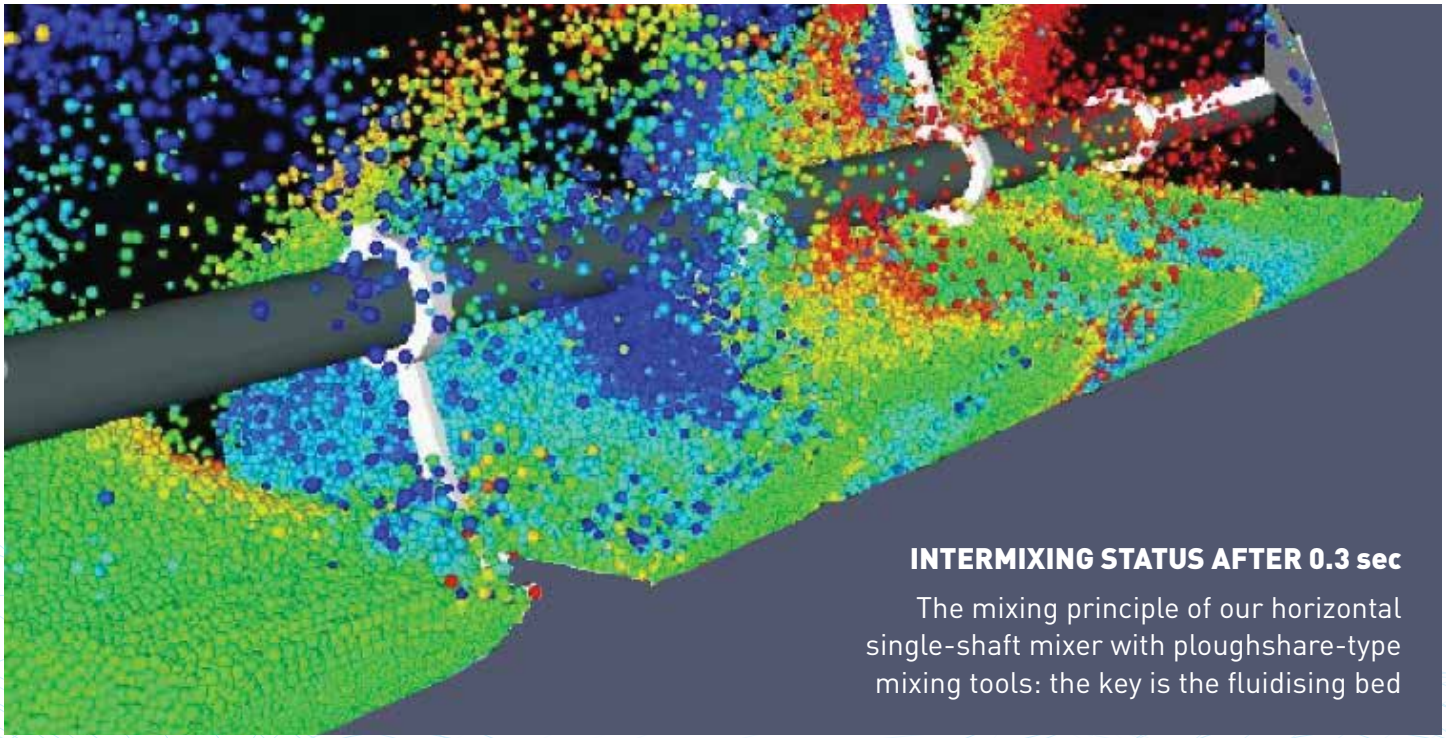
- ✓ **SHORT MIXING TIME**
- ✓ **HIGH PRODUCT HOMOGENEITY**
- ✓ **MAXIMUM PRODUCT PROTECTION**
- ✓ **LOW ENERGY REQUIREMENT**

The shorter and more homogeneous the mixing process, the more "empty" areas in between the materials to be mixed in which the individual particles of the various materials can diffuse. This means that two simultaneous actions, one convective and one diffusive, are taking place.

CONVECTIVE MIXING achieved by moving masses of particles

DIFFUSIVE MIXING acting on individual particles and resulting in a much slower process (comparable to diffusion in fluids)

SATISFACTORY MIXING RESULT is achieved when diffusive and convective mixing occur simultaneously as shown in figure.



INTERMIXING STATUS AFTER 0.3 sec

The mixing principle of our horizontal single-shaft mixer with ploughshare-type mixing tools: the key is the fluidising bed

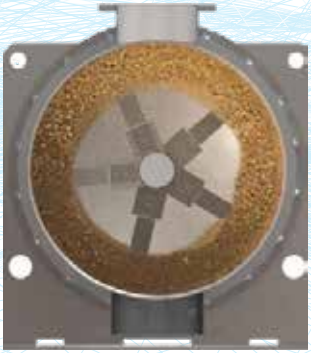
Froude Number and Physical Effect

Fr < 1

The weight force prevails over the inertial force.
These mixers move the particles within the material matrix.
They are suitable for easy-flowing products that require a long mixing time.

1 < Fr < 7

Weight and inertial force are balanced.
These mixers generate a mechanical fluid bed.
This configuration is suitable for most products that require a short mixing time and high mixing quality.



Fr > 7

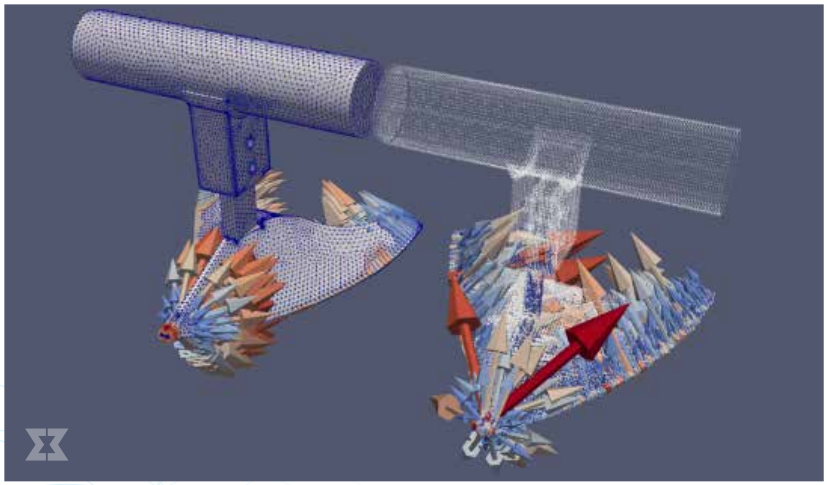
The inertial effect prevails.
These mixers provide a high flow rate at high rotation speed.
This configuration is suitable for high energy processes at the expense of mixing quality.

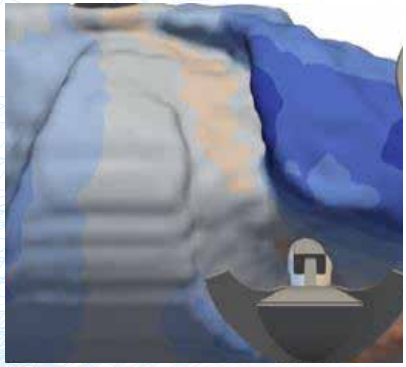
Always the Perfect Mix

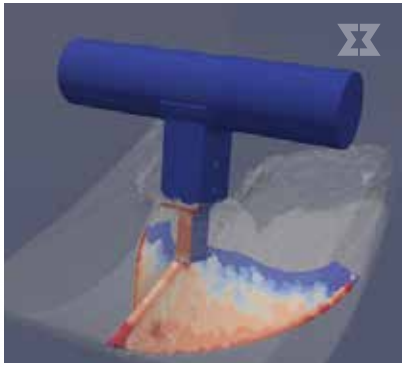
MAP® develops equipment and technologies that optimise the efficiency, reliability and sustainability of your plant. Our solutions minimise product loss and maximise production and plant productivity.

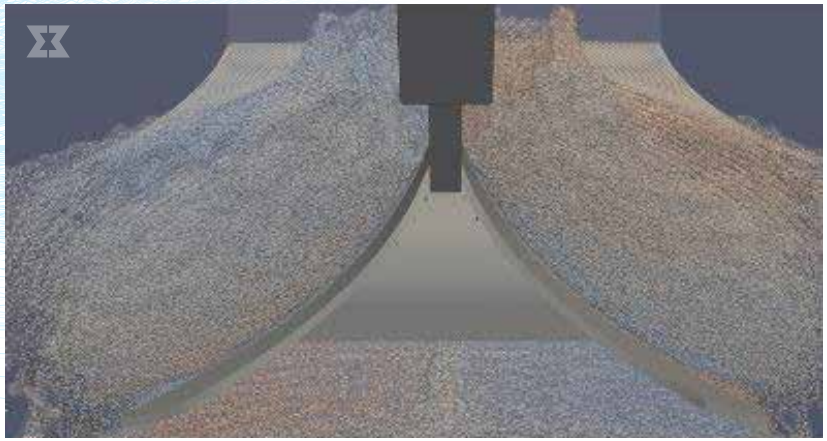
The special tool design favours an overall highly efficient mixing performance with low power consumption and low surface wear. Through simulation we have determined the correct clearance between chamber and tools to achieve adequate turbulence in the centre of the tools for perfect mixing homogeneity.

Homogeneity of the mixture is crucial. With MAP®'s Horizontal Single-Shaft Mixers, it is possible to achieve a 1/100,000 mixing ratio, which means that 1g of product can be mixed into a total of 100 kg. This enables the mixing of recipes with additives or components in a percentage of 0.00001%.

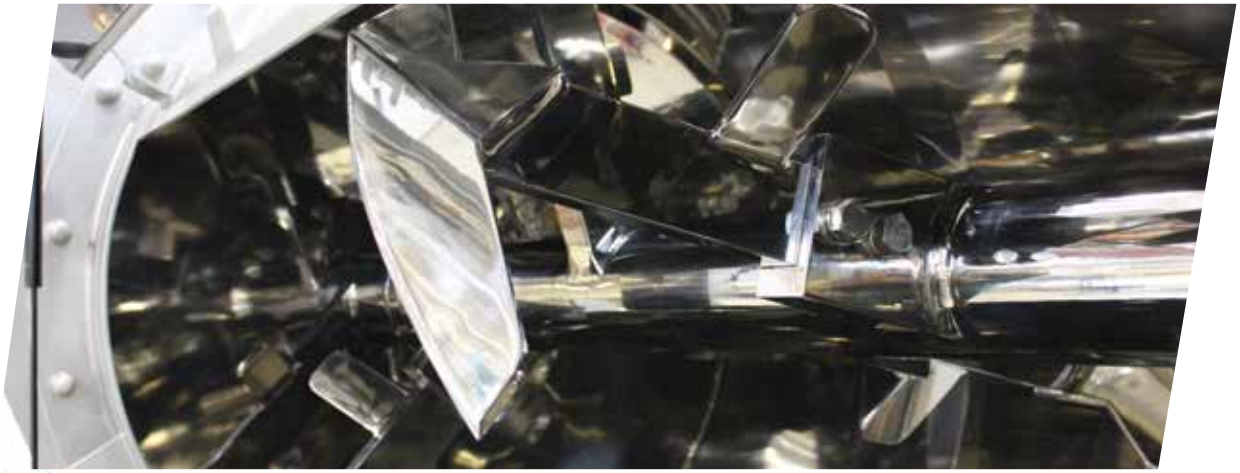








Materials and Surface Finishing



Food-grade certified

120-grit roughness 1.2 μm

240-grit roughness 0.5 ~ 0.8 μm

Mirror polishing roughness 0.1 μm

MAP® Accessories

Customise your machine adapting it to your needs enriching it by adding the right accessories.

ROTATING CHOPPERS

Among the most common mixer accessories there are rotating choppers the purpose of which may be either to enhance the mixing effect, reduce mixing time or break up lumps or a combination of all.

INJECTION WANDS

Optionally equipped with spray nozzles, injection wands are used to introduce liquid additives evenly and without lumps, ensuring perfect distribution of the liquid.

SAMPLING DEVICE

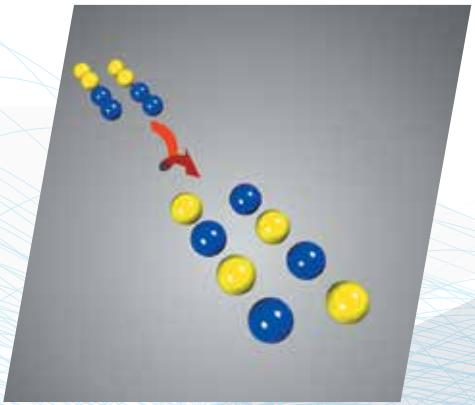
Sampling devices are used to take material samples during the mixing process, i.e., without stopping the mixer operation.

TEMPERATURE JACKET

Controlled heat or cooling transfer is essential in many processes. Mixers are optionally supplied with a temperature jacket fitted around the mixing chamber for cooling, heat treatment or drying.
The product inside the mixing chamber is heated by the jacket, which can be operated with hot water, steam or thermal oil. The product moisture evaporates in the process.

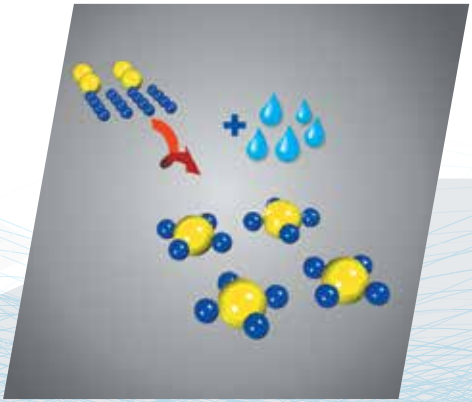
Mixing Technology
At a Glance

MAP® deals with MIXING of dry solids as well as dry solids with solid and liquid additives.
MAP® also deals with CONDITIONING, which stands for moistening materials to render them dust-free.
Then there is GRANULATING, AGGLOMERATING and COATING, which is the conversion of a powder into a granular material by adding a liquid.
Last but not least, CRUMBLING stands for the homogenisation of lumpy materials.



MIXING

- ✓ Dry solids
- ✓ Dry solids with solid and liquid additivies

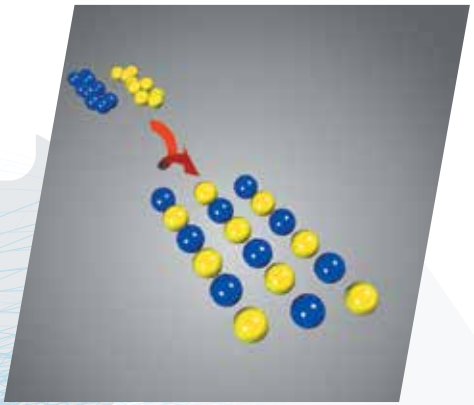


CONDITIONING

- ✓ Moistening materials to render them dust-free

GRANULATING AGGLOMERATING COATING

- ✓ Conversion of a powder into a granular material by adding a liquid



CRUMBLING

- ✓ Homogenisation of lumpy materials

QUALITY ASSURANCE & AFTER-SALES SUPPORT

Quality assurance streamlines production and helps to ensure that our products meet market requirements.
We currently supply certified mixers for food and ATEX applications.
Our range of products is backed by a **worldwide technical support** service.
Our experienced staff ensure that expertise is on hand to help overcome any issue as quickly as possible.
Through our global network of subsidiaries we provide **global support at local level**.

MIXING TECHNOLOGY

BATCH MIXERS

WBH
BATCH-TYPE SINGLE-SHAFT MIXERS
16

WBH LITHIUM
HIGH-EFFICIENCY PLOUGHSHARE MIXERS FOR SECONDARY BATTERY INDUSTRY
18

WBHP / WBHT
BATCH-TYPE SINGLE-SHAFT MIXERS WITH BOMB-BAY DISCHARGE
20

WBN
TUBULAR BATCH-TYPE RIBBON BLENDERS
22

WBR
TROUGH-TYPE RIBBON BLENDERS
24

MLH
LABORATORY MIXERS
34

CONTINUOUS MIXERS

WAH
CONTINUOUS SINGLE-SHAFT MIXERS
14

MESC / MESC-UM
CONTINUOUS TWIN-SHAFT PADDLE MIXERS
26

DUSTFIX™
DUST CONDITIONERS
28

CLAYGRAN™
DUST CONDITIONERS FOR CERAMIC DUST
30

WETDUST™
DUST CONDITIONERS
32

BENEFITS

High productivity

Low maintenance

Durability

High uptime

Maximum mixing homogeneity

mixer.wamgroup.com

ATEX Certified
Zone 20-21-22

WAH

Continuous Single-Shaft Mixers

FEATURES

- **CAPACITY**: 2 ~ 1,500 m^3/h (1.2 ~ 590 cfm) depending on recipe and mixer configuration
- Optional up to 20% **LIQUID ADDITION**
- **OPERATING ATMOPHERES**: ATEX group IIA, IIB for gas, group IIIA, IIIB and IIIC for dust
- **STAINLESS-STEEL SURFACE FINISH**: grit silking, mirror polishing, glass bead blasting
- **WIDE RANGE OF MIXING TOOLS:** ploughshare, toothed ploughshare, blade-type, toothed blade with anti-wear coating on request

Learn more about this product

BENEFITS

Short mixing time

Reproducibility of batches

Durability

High uptime

Maximum mixing homogeneity

mixer.wamgroup.com

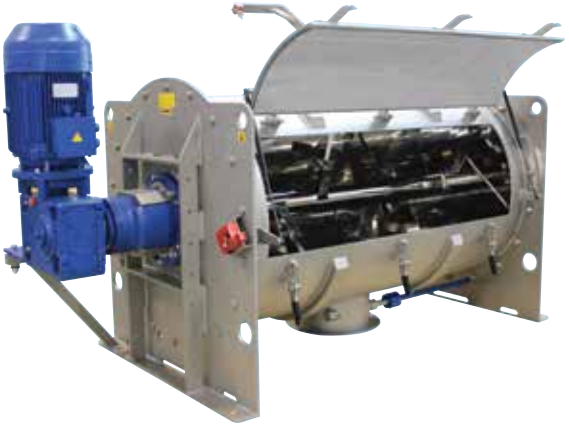
ATEX Certified
Zone 20-21-22

WBH

Batch-type Single-Shaft Mixers

FEATURES

- **CAPACITY**: 10 - 17,500 litres per batch
- **MIXING RATIO**: 1/100,000
- **VARIATION COEFFICIENT** (CV): 3 ~ 5%
- **OPTIONAL LIQUID ADDITION**
- **OPTIONAL CHOPPERS**



Learn more about this product

BENEFITS

No product contamination

Short mixing time

Low energy consumption

Durability

Reproducibility of batches

Reliability

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WBH Lithium

High-Efficiency Ploughshare Mixers for Secondary Battery Industry

FEATURES

- **CAPACITY**: 10 ~ 17,500 litres per batch
- **MIXING RATIO**: 1/100,000
- **OPTIONAL LIQUID ADDITION**
- **MANUFACTURED FROM 304L / 316L STAINLESS STEEL**
- **PNEUMATIC CONTROL PANEL**

Learn more about this product

BENEFITS

Excellent reproducibility of batches

Low maintenance

Total emptying, minimum residue

Short mixing time

Optimum mixing homogeneity

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ATEX Certified

WBHP / WBHT

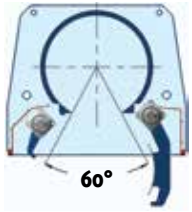
Batch-type Single-Shaft Mixers with Bomb-Bay Discharge

FEATURES

- **CAPACITY**: 165 ~ 10,500 litres per batch
- **MIXING RATIO**: 1/100,000
- **VARIATION COEFFICIENT** (CV): 5%
- **OPTIONAL LIQUID ADDITION**

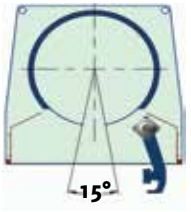
WBHT

60° Bomb-bay Door



WBHP

15° Bomb-bay Door



Learn more about this product

BENEFITS

Low maintenance

Durability

Power rating adapted to application

Reliability in operation

Mixing of fragile materials without particle damage

mixer.wamgroup.com

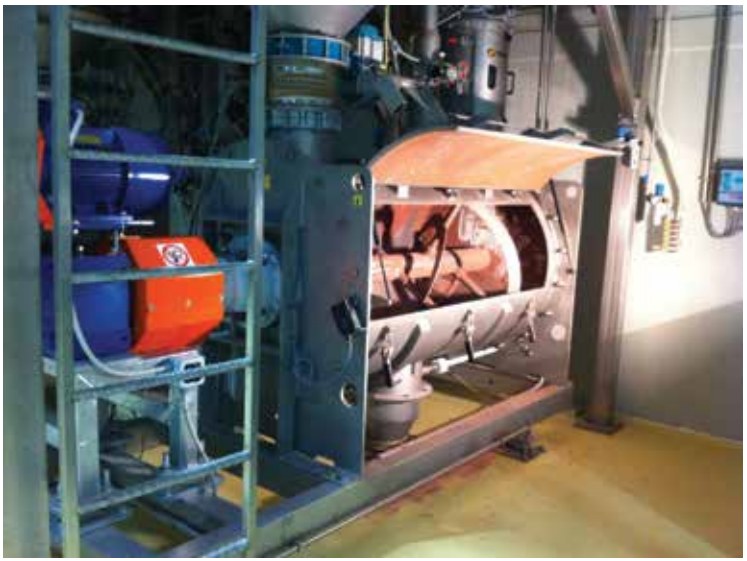
ATEX Certified

WBN

Tubular Batch-type Ribbon Blenders

FEATURES

- **CAPACITY**: 10 ~ 17,500 litres per batch
- **OPERATING ATMOSPHERES**: ATEX group IIB for gas, group IIIC for dust
- **STAINLESS-STEEL SURFACE FINISH**: grit silking, mirror polishing, glass bead blasting
- **LARGE HOPPER INLET** or **MULTIPLE ROUND INLET SPOUTS**



Learn more about this product

BENEFITS

Easy installation and use

Prevention of product degradation

Low power installed

Blending of fragile and temperature-sensitive products

Reduction of operating costs

WBR

Trough-type Ribbon Blenders

FEATURES

- **CAPACITY**: 20 ~ 3,900 litres per batch
- **AIR OR GAS-PURGED END BEARING ASSEMBLIES**
- **DOUBLE RIBBON SPIRAL**
- **CHAMBER AND ROTOR MANUFACTURED** from **CARBON STEEL** or **304L / 316L STAINLESS STEEL**
- **PNEUMATIC CONTROL PANEL**

Learn more about this product

BENEFITS

Short mixing time

Durability

Power rating adapted to application

Comfortable liquid injection

MESC / MESC-UM

Continuous Twin-Shaft Paddle Mixers

FEATURES

- **CAPACITY**: 3 ~ 70 m^3/h (1.8 ~ 41 cfm) depending on recipe and machine configuration
- Optionally up to 20% **LIQUID ADDITION**
- **HEAVY-DUTY MIXING CHAMBER** manufactured from carbon steel or 304L / 316L stainless steel

Learn more about this product

BENEFITS

No material residue

Low energy consumption

Minimum wear

Easy and quick cleaning

DUSTFIX™

Dust Conditioners

FEATURES

- **CAPACITY**: 2 ~ 80 m^3/h (1.2 ~ 47 cfm)
- **CONDITIONING CHAMBER MANUFACTURED** from **SPECIAL NON-STICK ANTI-WEAR SINT™ ENGINEERING POLYMER**
- **ROTOR SHAFT** completely removable with modular, individually replaceable conditioning tools
- **DRY FEEDING** and **CONVEYING SECTION** Elastic SINT™ engineering polymer outlet safeguard
- **REVOLVING INLET FLANGE**

Learn more about this product

BENEFITS

No material residue

Low energy consumption

Simple and quick maintenance

Easy and quick cleaning

CLAYGRAN™

Dust Conditioners for Ceramic Dust

FEATURES

- **CAPACITY**: 1 ~ 4 m^3/h (0.6 ~ 2.4 cfm)
- **CONDITIONING CHAMBER** and **ROTOR SHAFT** in **SPECIAL NON-STICK ANTI-WEAR SINT™ ENGINEERING POLYMER**
- **ROTOR SHAFT** completely removable with modular, individually replaceable conditioning tools
- **PLOUGHSHARE**-shaped conditioning tools with replaceable anti-wear top section
- **DRY FEEDING** and **CONVEYING SECTION**
  Elastic SINT™ engineering polymer outlet safeguard
- **NON-STICK**, **WEAR-RESISTANT SINT™ CHAMBER LINING**

Learn more about this product

BENEFITS

No material residue

Low energy consumption

Simple and quick maintenance

Durable conditioning tools in special anti-wear material

Easy and quick cleaning

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WETDUST™

Dust Conditioners

FEATURES

- **CAPACITY**: 1 ~ 4 m^3/h (0.6 ~ 2.4 cfm)
- **CONDITIONING CHAMBER** and **ROTOR SHAFT** in **SPECIAL NON-STICK ANTI-WEAR SINT™ ENGINEERING POLYMER**
- **ROTOR SHAFT** completely removable with modular, individually replaceable conditioning tools
- **DRY FEEDING** and **CONVEYING SECTION** Elastic SINT™ engineering polymer outlet safeguard
- **NON-STICK, WEAR-RESISTANT SINT™ CHAMBER LINING**

Learn more about this product

BENEFITS

Tests using all technologies; maximum versatility

Use of different tools and rpm

User-friendly design

Maximum operating comfort

Quick and safe horizontal mixing shaft replacement

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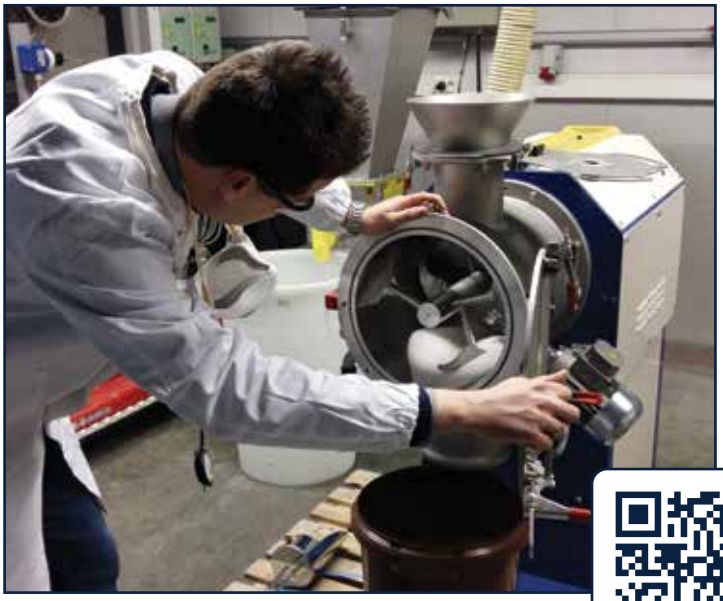
MLH

Laboratory Mixers

FEATURES

- **CAPACITY**: 1 ~ 35 litres net per batch
- Possible **LIQUID ADDITION**
- Available in **304L / 316L STAINLESS STEEL**
- Motor controlled by **FREQUENCY INVERTER**



Learn more about this product

203001843 March 2023

This brochure has been edited for distribution in European Union countries.

MAP®

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